

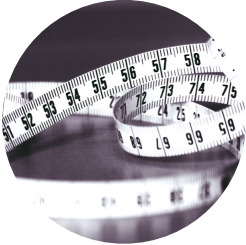
MOORE ABOUT... RESEARCH METRICS



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INTRODUCING METRICS

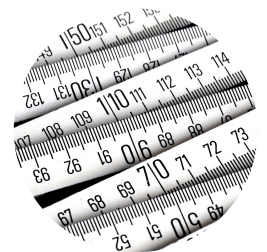
What are research metrics?



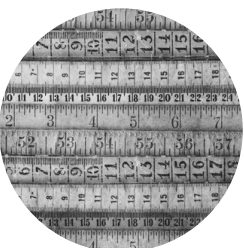
Research metrics are numerical measures used to assess the impact of individual researchers, their work or even entire institutions. Impact is a notoriously difficult thing to measure as it can mean different things to different people and is hard to attribute to a single source. Instead surrogate measures are often used to indicate impact. In academia these surrogate measures have traditionally been metrics which measure how much readership and engagement something has had, for example how many people have read a certain article. The higher the metric, the more successful the output or person is considered to be.

Limitations of metrics

However, metrics are not without their limitations. They focus on numbers which only tell part of the story. They also offer little or no context for the number which can make more meaningful comparisons difficult. For example, a citation count of ten may be high in one discipline but low in another. In addition to this, several leading research metrics are calculated using closed systems which makes them difficult to verify. Many of the most common metrics in use build up over time so can be unfairly biased against early career researchers who have not yet had the same opportunities to publish as their peers.



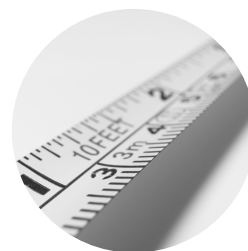
Altmetrics



One solution to these issues was the creation of [Altmetrics](#) in 2010. These alternative metrics aim to take into account more modern methods of sharing research such as social media promotion and news stories. Altmetrics offer context for the number, for example by showing the actual content of social media mentions so you can see if they are positive or negative.

RESPONSIBLE METRICS

However, both traditional metrics and Altmetrics rely on numerical assessment which can cause the issues described above. This has led to the development of something known as the Responsible Metrics movement which advocates against an overreliance on metrics. Important work and life decisions such as budget allocations and promotions are often made based on these metrics and they can be misleading in isolation. Responsible metrics doesn't advocate stopping the use of metrics but asks institutions to use them as one part of a wider toolkit of measures which consider the broader scope of impact. You can read more about responsible metrics in our [online guide](#).



Key research metrics

Measurement methods vary between disciplines. The following section looks at four of the most common and established metrics available, how they are calculated and their strengths and weaknesses. Researchers should explore the metrics used in their own discipline and think critically about how they can best use them going forward as part of showcasing impact.

JOURNAL IMPACT FACTOR (JIF)

One of the most common metrics, the JIF looks at the popularity of journal titles by averaging out the number of citations they have received in the last two years. The higher the number, the more impact a journal is said to have. Owned and operated by a commercial company, the JIF is easy to calculate and used across many disciplines but is slightly biased towards the sciences. It doesn't allow for the fact that citations take time to build so newer journals could be disadvantaged.

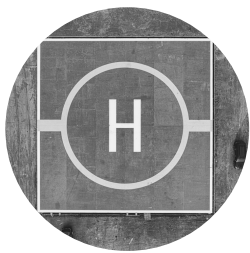


SCIMAGO RANKINGS

This metric also looks at citation counts but takes into account the source of the citation. The more prestigious a source is considered to be, the higher the score. Although this aims to offer some context for the numbers there are questions around what makes one citing source better than another and what this means for potential bias.

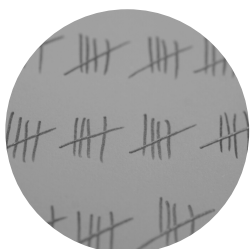


INTRODUCING METRICS



H-INDEX

A common metrics to measure the individual researcher, the h-index compares an author's number of outputs with the total citations received. Outputs are ranked from least to most cited. The point where an output has more citations than its ranking is an author's h-index. This metric allows researchers to track their performance over time but is often accused of being biased in favour of established researchers who have had more time to publish.



CITATION COUNTS

Perhaps the simplest metrics involves counting the number of citations an output, researcher or institution has received. The higher the number, the better something is said to have done. Although this measure is easy to understand it is also easy to manipulate. Practices such as gift or self-citation can artificially inflate numbers. Depending on the sources used it is also possible that the same output can be cited more than once, an increasing problem as authors share different versions of their work through open access or preprint servers.

REMEMBER

Metrics are an important method of research assessment but they are just one method and should be used as part of a larger toolkit of impact measurement.

Below are some sources of further information on metrics and responsible metrics:

Moore Library Metrics Hub

<https://libguides.cam.ac.uk/physicalsciences/metricsandimpact>

The Metrics Toolkit

<http://www.metrics-toolkit.org/>



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